

**MASTER OF COMPUTER
APPLICATIONS (MCA-NEW)
Term-End Examination
June, 2025**

**MCS-218 : DATA COMMUNICATION AND
COMPUTER NETWORKS**

Time : 3 Hours

Maximum Marks : 100

Note : (i) *Question No. 1 is compulsory and
carries 40 marks.*

(ii) *Attempt any **three** questions from
the rest.*

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1. (a) Discuss the Standard Internet Protocols
and their roles. 5

- (b) Discuss the concept of Signal to Noise ratio and its significance in data transmission. 5
- (c) Find CRC for the frame 1101011011 with generator polynomial $x^3 + 1$. 5
- (d) What do you mean by noise in a signal ? Briefly discuss the types of noise. 5
- (e) Explain the importance of transmission media. 4
- (f) Explain the process of analog to analog modulation. Discuss different types of encoding method for an analog signal. 5
- (g) Explain pipelining in Go-Back-N ARQ with example. 6

(h) Enlist sublayers of data link layer.

What are the key functions of these sublayers ? 5

2. (a) Discuss different types of Malware. 5

(b) List the challenges faced by ad-hoc networks. 5

(c) Explain the structure and functionality of UDP. 5

(d) Explain the difference between circuit switching and packet switching. 5

3. (a) Draw the timing diagram for piggybacking process in case where sender and receiver both transmitting the data. 5

- (b) Give an expression for finding throughput of the system in pure ALOHA and draw the diagram to represent the relation between throughput and load. 5
- (c) Discuss the advantages of P-persistent CSMA. 5
- (d) How does cryptography contribute to network security ? 5
4. (a) Illustrate WSN topologies with the help of diagram. 6
- (b) Explain the structure of WSNs and classification of WSNs. 7
- (c) Describe the concept of link state routing and its significance. 7

5. (a) Discuss the concept of admission control, traffic policing and traffic shaping. 6
- (b) Draw the MANET layer architecture and explain the functionality of each layer in it. 7
- (c) Describe the different methods for framing in data link layer with example. 7

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